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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,212	11/22/2006	Valerie Frankard	1187-30	2213
28349 7590 01/23/2009 DILWORTH & BARRESE, LLP 333 EARLE OVINGTON BLVD. SUITE 702 UNIONDALE, NY 11553				
EXAMINER COLLINS, CYNTHIA E				
ART UNIT		PAPER NUMBER		
1638				
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01/23/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,212

Applicant(s)

FRANKARD ET AL.

Examiner

Cynthia Collins

Art Unit

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2008.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
4a) Of the above claim(s) 1-3 and 15-28 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 4-14 is/are rejected.
7) ☒ Claim(s) 11 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 16 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date 21207
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

Election/Restrictions

Applicant's election with traverse of Group IX, claim(s) 4-14, drawn to a method for improving plant growth characteristics comprising introducing and expressing in a plant an isolated nucleic acid sequence encoding a GRUBX protein, or wherein said improved growth characteristics is increased yield or modified plant architecture, and SEQ ID NOs: 1 and 2, in the reply filed on October 31, 2008 is acknowledged.

The traversal is on the ground(s) that the single inventive technical feature linking the different groups is the previously unknown use of GRUBX molecule to improve plant growth characteristics, regardless of whether the use comprises increasing expression and/or activity and/or levels of the GRUBX molecule and regardless of whether the use is effected by site-directed mutagenesis, homologous recombination, TILLING and T-DNA activation or by any other method.

This is not found persuasive because the technical feature linking all of the groups of invention is a nucleic acid sequence encoding a UBX domain protein, which technical feature is not a special technical feature, as set forth at page 4 of the restriction requirement mailed August 29, 2008.

Claims 1-3 and 15-28 are withdrawn from consideration.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

Claim 11 is objected to because of the following informalities: claim 11 is objected to because the preamble is grammatically incorrect. Appropriate correction is required. It is suggested that “The method according claim 10” be amended to “The method according to claim 10” in order to overcome the objection.

Specification

The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. See, e.g. pages 10 and 39. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 4-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claimed method require the use of a broad genus of nucleic acid molecules encoding a GRUBX protein, including nucleic acid molecules isolated from a eukaryotic organism and nucleic acid molecules that are hybridizing variants, functional portions, alternative splice variants, or allelic variants of GRUBX encoding nucleic acid molecules or of SEQ ID NO:1, or that encode homologues, derivatives, and active fragments of GRUBX proteins or of SEQ ID NO:2.

The specification describes the structure of GRUBX proteins as comprising at least an UBX domain, preferably an UBX domain and a PUG domain, and optionally also a Zinc finger domain (page 6). The specification discloses that increasing seed yield, particularly the harvest index, is one of the activities of GRUBX proteins (page 7). The specification does not disclose what other specific activities GRUBX proteins exhibit.

With respect to nucleic acid molecules that encode proteins having both the structural and functional attributes of a GRUBX protein, the specification describes a single species, the nucleotide sequence of SEQ ID NO:1 encoding the amino acid sequence of SEQ ID NO:2, a nucleic acid isolated from *Nicotiana tabacum* that, when expressed from a seed-preferred prolamins promoter in rice plants transformed therewith, increases the harvest index (a measure of seed yield) of the transformed plants as compared to nontransformed control plants (pages 41-43).

The specification does not describe other nucleic acid molecules obtained from other sources that encode proteins that encode proteins having both the structural (comprise at least an UBX domain) and functional (increase seed yield) attributes of a GRUBX protein. The specification also does not describe nucleic acid molecules that are hybridizing variants,

functional portions, alternative splice variants, or allelic variants of GRUBX encoding nucleic acid molecules or of SEQ ID NO:1, or that encode homologues, derivatives, and active fragments of GRUBX proteins or of SEQ ID NO:2.

The Federal Circuit has clarified the application of the written description requirement to nucleotide sequences. The court stated that “A description of a genus of cDNAs may be achieved by means of recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to members of the genus, which features constitute a substantial portion of the genus.” See *University of California v. Eli Lilly and Co.*, 119 F.3d 1559, 1569; 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). The court has also affirmed the PTO’s applicable standard for determining compliance with the written description requirement, quoting from the PTO’s Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, P1, “Written Description” Requirement, 66 Fed. Reg. 1099, 1106, where it is set forth that the written description requirement can be met by “show[ing] that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics ... i.e., complete or partial structure, other physical and/or chemical properties, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics.” See *Enzo Biochem Inc. v. Gen-Probe Inc.*, 63 USPQ2d 1609, 1613 (CAFC 2002)

In the instant case Applicant has not described a representative number of species falling within the scope of the genus of nucleic acid molecules required to practice the claimed invention, which genus encompasses numerous undisclosed and uncharacterized nucleic acid molecules that encode proteins that are hybridizing variants, functional portions, alternative

splice variants, or allelic variants of GRUBX encoding nucleic acid molecules or of SEQ ID NO:1, or that encode homologues, derivatives, and active fragments of GRUBX proteins or of SEQ ID NO:2, nor the structural features unique to the genus that are correlated with increasing seed yield.

Claims 4-14 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for A method comprising introducing into and expressing in a plant under the control of a seed-preferred promoter a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:1 or encoding the amino acid sequence of SEQ ID NO:2, does not reasonably provide enablement for methods comprising introducing into and expressing in a plant other nucleic acid molecules encoding other proteins. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The claims are broadly drawn to methods comprising introducing and expressing in a plant nucleic acid molecules that encode a GRUBX protein, including nucleic acid molecules isolated from a eukaryotic organism that encode a GRUBX protein, and including nucleic acid molecules that are hybridizing variants, functional portions, alternative splice variants, or allelic variants of GRUBX encoding nucleic acid molecules or of SEQ ID NO:1, or that encode homologues, derivatives, and active fragments of GRUBX proteins or of SEQ ID NO:2.

The specification discloses the isolation from *Nicotiana tabacum* of the nucleotide sequence of SEQ ID NO:1 encoding the amino acid sequence of SEQ ID NO:2 (page 39). The specification also discloses a method comprising introducing into rice plants and expressing,

from a seed-preferred prolamin promoter, a nucleic acid molecule (SEQ ID NO:1) that encodes the amino acid sequence of SEQ ID NO:2 (pages 39-40). The specification additionally discloses that transgenic rice plants produced by the method have an increased harvest index (a measure of seed yield) as compared to nontransformed control plants (pages 41-43).

The specification does not disclose other nucleic acid molecules obtained from other sources that encode proteins that comprise at least an UBX domain and that function to increase seed yield when expressed in a plant transformed therewith. The specification also does not disclose how to alter or modify the nucleotide sequence of SEQ ID NO:1 or the amino acid sequence of SEQ ID NO:2 such that their seed yield increasing activity is retained.

The full scope of the claimed invention is not enabled because the function of a sequence cannot reliably be predicted on the basis of its structure or its homology to other known sequences, including sequences encoding proteins that comprise UBX domains.

See, for example, Whisstock J.C. et al. (Prediction of protein function from protein sequence and structure. *Q Rev Biophys.* 2003 Aug;36(3):307-40. Review), who teach

“... prediction of protein function from sequence and structure is a difficult problem, because homologous proteins often have different functions. Many methods of function prediction rely on identifying similarity in sequence and/or structure between a protein of unknown function and one or more well-understood proteins. Alternative methods include inferring conservation patterns in members of a functionally uncharacterized family for which many sequences and structures are known. However, these inferences are tenuous. Such methods provide reasonable guesses at function, but are far from foolproof.” (Abstract)

Whisstock J.C. et al. also teach at page 309 that while the observation that similar sequences determine similar structures gives us general confidence in homology modeling, much less reliable is the widely held assumption that proteins with very similar sequences should by virtue of their very similar structures have similar functions. Whisstock J.C. et al. further teach at

page 309 that to reason from sequence and structure to function is to step on much shakier ground, that while many families of proteins contain homologues with the same function, the assumption that homologues share function is less and less safe as the sequences progressively diverge, and that even closely related proteins can change function through divergence to a related function or by recruitment for as very different function in such cases the assignment of function on the basis of homology in the absence of direct experimental evidence will give the wrong answer.

Whisstock J.C. et al. additionally teach at page 310 that a protein need not even change sequence to change function, as numerous proteins exhibit multiple functions in different cellular environments such that even if detailed in vitro studies on isolated proteins do identify a function we cannot be sure we know the molecules full repertoire of biological activities, and that nonhomologous proteins may conversely have similar functions.

Whisstock J.C. et al. further teach that while general hints based on protein sequence, structure, genomics and interaction patterns may be useful in guiding experimental investigations of protein function,

“inferring protein function from knowledge of the function of a close homologue is like solving the clue of an American crossword puzzle. Finding the word that satisfies the definition may be difficult but the task in principle is straightforward. Working out the function of a protein from its sequence and structure is like solving the clue of a British crossword puzzle. It is by no means obvious which features of the definition are providing the real clues, as opposed to misleading ones. Also, for both types of puzzle and for the suggestion of a protein function, even if your answer appears to fit it may be wrong.” (pages 311-312).

See also, for example, Buchberger A. et al. (The UBX domain: a widespread ubiquitin-like module. *J Mol Biol.* 2001 Mar 16;307(1):17-24), who teach that the UBX domain, originally identified in a member of the ubiquitin-associated domain family of proteins implicated in

ubiquitination, is a module of unknown function present in many eukaryotic proteins.

Buchberger A. et al. also teach that the UBX domain is found in a number of different proteins that appear to be unrelated to those involved in ubiquitination (page 17 column 2).

In the instant case the specification does not provide sufficient guidance with respect to which nucleic acid molecules obtained from other sources that encode proteins that comprise at least an UBX domain would function to increase seed yield when expressed in a plant transformed therewith and which would not. The specification also does not provide sufficient guidance with respect to how to alter or modify the nucleotide sequence of SEQ ID NO:1 or the amino acid sequence of SEQ ID NO:2 such that their seed yield increasing activity is retained. Absent such guidance one skilled in the art would have to isolate from different sources numerous different sequences encoding GRUBX proteins, and modify in a variety of different ways the nucleotide sequence of SEQ ID NO:1, and then each sequence for its ability to increase seed yield in a plant transformed therewith, in order to determine which of sequences meeting the structural limitations set forth in the claims, if any, would function in the same manner as SEQ ID NO:1. Such a trial and error approach to practicing the claimed invention would constitute undue experimentation.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9 and 10, and claims dependent thereon, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 9 and 10 are indefinite in the recitation

of “capable of hybridising”, as it is unclear whether the hybridization of the sequence to the nucleic acid is required by the claimed methods.

Claim 9, and claims dependent thereon, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 9 is indefinite in the recitation of “is as represented by”, as it is unclear in what way SEQ ID NO:1 is representative of the required nucleic acid molecule, and it is unclear in what way SEQ ID NO:2 is representative of the required GRUBX protein.

Claim 10, and claims dependent thereon, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 10 is indefinite in the recitation of “related gene family members”, as it is unclear what the gene family members are related to, e.g. each other? a GRUBX protein?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 4-7 and 9-10, are rejected under 35 U.S.C. 102(b) as being anticipated by INZE et al. (WO 03/085115, published 16 October 2003).

The claims are drawn to a method for improving plant growth characteristics, said method comprising introducing and expressing or overexpressing in a plant a nucleic acid molecule isolated from a eukaryotic organism that encodes a GRUBX protein, including a nucleic acid molecule of SEQ ID NO:1 isolated from the plant *Nicotiana tabacum* that encodes a GRUBX protein of SEQ ID NO:2 and a nucleic acid molecule capable of hybridizing to a GRUBX encoding nucleic acid.

INZE et al. teach a method comprising introducing and expressing or overexpressing in a plant a nucleic acid molecule isolated from the plant *Nicotiana tabacum* that comprises the nucleotide sequence of SEQ ID NO:1 and that encodes a protein comprising the amino acid sequence of SEQ ID NO:2 (See INZE et al.'s SEQ ID NO:61 and page 13 lines 23-26). The nucleic acid molecule taught by INZE et al. is capable of hybridizing to a GRUBX encoding nucleic acid because it comprises the nucleotide sequence of SEQ ID NO:1. See also the sequence alignment between Applicant's SEQ ID NO:1 and SEQ ID NO: 61 of INZE et al. below.

While INZE et al. are silent with respect to whether their method is "for improving plant growth characteristics", INZE et al. need not explicitly teach this limitation in order to anticipate the claimed invention, since the recitation in the preamble of claim 1 is an intended use for the claimed method, and thus not limiting.

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RESULT 3
AK927140
LOCUS       AK927140                1729 bp    DNA        linear    PAT 19-DEC-2003
DEFINITION  Sequence 61 from Patent WO03085115.
ACCESSION  AK927140
VERSION    AK927140.1  GI:40247876
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Art Unit: 1638

KEYWORDS 1
 SOURCE Nicotiana tabacum (common tobacco)
 ORGANISM Nicotiana tabacum
 Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
 Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons;
 asterids; lamiales; Solanales; Solanaceae; Nicotianoideae;
 Nicotianaceae; Nicotiana.
 REFERENCE 1
 AUTHORS Inze, D. and Broekaert, W.
 TITLE Identification and validation of novel targets for agrochemicals
 JOURNAL Patent: WO 03085115-A 61 16-OCT-2003;
 CropDesign N.V. (BE)
 FEATURES Location/Qualifiers
 SOURCE 1..1729
 /organism="Nicotiana tabacum"
 /mol_type="unassigned DNA"
 /db_xref="taxon:4097"

ORIGIN

Query Match	100.0%	Score 1380;	DB Z;	Length 1729;
Best Local Similarity	100.0%	Pred. No. 0;		
Matches 1380;	Conservative	0;	Mismatches	0;
			Indels	0;
				Gaps
				0;
Qy	1	ATGGGTGACATGAAGGATAAAGTCAAGGGTTCATGAAAAAGTCACATCTTCTCTTCA	60	
Db	276	ATGGGTGACATGAAGGATAAAGTCAAGGGTTCATGAAAAAGTCACATCTTCTCTTCA	335	
Qy	6	GTAAAGTTTAAAGGCCAAGGTAGGGTTTGGGTGGTTCATCTTCTTCAGGACCTCAAA	120	
Db	336	GTAAAGTTTAAAGGCCAAGGTAGGGTTTGGGTGGTTCATCTTCTTCAGGACCTCAAA	395	
Qy	12	CATGTCAATTAATTTTTCATCACAATCCCTTAATACAGGCAAGATCAACCACTTTCATAT	180	
Db	396	CATGTCAATTAATTTTTCATCACAATCCCTTAATACAGGCAAGATCAACCACTTTCATAT	455	
Qy	18	ACAAAACCTTCGCTCAAAAACCAAGTAATCTGATCAAGAAATGAGAAATATATGTGAA	240	
Db	456	ACAAAACCTTCGCTCAAAAACCAAGTAATCTGATCAAGAAATGAGAAATATATGTGAA	515	
Qy	24	ATTGAGTTCAACAAAAGTGAATCAAGAGTGGTTTGAATCCATTGGTGAATAGTCACT	300	
Db	516	ATTGAGTTCAACAAAAGTGAATCAAGAGTGGTTTGAATCCATTGGTGAATAGTCACT	575	
Qy	30	TCGGGAAGAGAAACCAAGGGATTCACTTACTAATGTGTTGAATGCCCTGCTGT	360	
Db	576	TCGGGAAGAGAAACCAAGGGATTCACTTACTAATGTGTTGAATGCCCTGCTGT	635	
Qy	36	GGTAGTGGTTTGTCTTGAAGAGAGGTGTCACTCATATGATAGCTGTTAAGTTCT	420	
Db	636	GGTAGTGGTTTGTCTTGAAGAGAGGTGTCACTCATATGATAGCTGTTAAGTTCT	695	
Qy	42	GAGTGTCTCTTAATTTGGGAGTTGAAAGTAAAGTTGAAAGTAAAGTGAATGGAAACA	480	
Db	696	GAGTGTCTCTTAATTTGGGAGTTGAAAGTAAAGTTGAAAGTAAAGTGAATGGAAACA	755	
Qy	48	TGTGTTAGTGATATGTTTCAAGGAAGCCCTCAGAGGGTCAGTTGAAGTGTCAATAG	540	
Db	756	TGTGTTAGTGATATGTTTCAAGGAAGCCCTCAGAGGGTCAGTTGAAGTGTCAATAG	815	
Qy	54	TTGTTAAAGAAATTTGTGAAGGAACAGAGATGCCAAGTTAGGAAATTAAGATGGG	600	
Db	816	TTGTTAAAGAAATTTGTGAAGGAACAGAGATGCCAAGTTAGGAAATTAAGATGGG	875	
Qy	60	AATCCAAAAATAAAGGTGCTATAGTGAATGTTGTAGAGAGGTGAGCTATTGGAAATT	660	
Db	876	AATCCAAAAATAAAGGTGCTATAGTGAATGTTGTAGAGAGGTGAGCTATTGGAAATT	935	
Qy	66	GTTGGATTGGTGTGAAGGAAGAGGTGGGGAAATTTGGGCTGTGATGATGTTCCCTT	720	
Db	936	GTTGGATTGGTGTGAAGGAAGAGGTGGGGAAATTTGGGCTGTGATGATGTTCCCTT	995	
Qy	72	GAGAACCACTTGTATGCTTAAAGATGTAGTTTCACTCTTGGAACCGAAGAGGTGAA	780	
Db	996	GAGAACCACTTGTATGCTTAAAGATGTAGTTTCACTCTTGGAACCGAAGAGGTGAA	1055	
Qy	78	GAGTTGGCTGCTTATCCCAAGTTAAGCGAGTGAACCAAGTTGAGCCGAAGAGATTGAT	840	
Db	1056	GAGTTGGCTGCTTATCCCAAGTTAAGCGAGTGAACCAAGTTGAGCCGAAGAGATTGAT	1315	
Qy	84	AGACAGATTCGAGTGTCTTTCTGTTCCCGAGAGCGTAGCAGCAAAAATGAGCTACT	900	
Db	1316	AGACAGATTCGAGTGTCTTTCTGTTCCCGAGAGCGTAGCAGCAAAAATGAGCTACT	1375	

Qy 901 GATTCTCTCTTTAACTCTTCACGTGAGGAATTGAGAGAGAGCAGAGATGAGGAAAG 960
|||||
Db 1176 GATTCTCTCTTTAACTCTTCACGTGAGGAATTGAGAGAGAGCAGAGATGAGGAAAG 1235

Qy 961 AAATTAGAAAGATTCCAAATTTATTTGATTCCTAAATCTTATCGGAAAGCAGCTAAAAGCT 1020
|||||
Db 1236 AAATTAGAAAGATTCCAAATTTATTTGATTCCTAAATCTTATCGGAAAGCAGCTAAAAGCT 1295

Qy 1021 GCAAGAAAGAGATACACAAAATCCATTATCCGTGTACAGTTTCCAGATGGAGCATTTGCTT 1080
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Db 1296 GCAAGAAAGAGATACACAAAATCCATTATCCGTGTACAGTTTCCAGATGGAGCATTTGCTT 1355

Qy 1081 CAAGGTGTCTTTTACCTTCGGAGCCAACCTAGTGCTCTTTATGAGTTTGTGAGCGCAGCG 1140
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Qy 1141 TTAAAGGAACCAAGCTTAGAGTTTGAATTTGTTACATCCGCTGTTGTTTAAAGACGGGTG 1200
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Qy 1201 ATTCCCAATTTTCAGCTGCTGGGGAGAGGCTGTACAGTTGAAGAGGAGGATTTGGTT 1260
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Qy 1261 CCTGAGCTCTACTCAAATTTAAACCTATCGAAACAGATTCTGTGTTTTTACTGGCTT 1320
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Db 1536 CCTGAGCTCTACTCAAATTTAAACCTATCGAAACAGATTCTGTGTTTTTACTGGCTT 1595

Qy 1321 TGTAAATGAGCTTCTTGAATTTAGCGAGCCCTCGAGACCGGATCAGTTGCTTCTCGTAA 1380
|||||
Db 1596 TGTAAATGAGCTTCTTGAATTTAGCGAGCCCTCGAGACCGGATCAGTTGCTTCTCGTAA 1655

Remarks

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Collins whose telephone number is (571) 272-0794. The examiner can normally be reached on Monday-Friday 8:45 AM -5:15 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Collins/
Primary Examiner, Art Unit 1638

CC